

CLAIMS

I/WE CLAIM:

1. A method for stabilizing a multi-layered dielectric reflectivity coating subject to compaction/densification upon exposure to DUV or shorter wavelength light, comprising:

10 applying the reflectivity coating to a substrate surface forming a coating bulk on the surface;

 exposing the coating bulk to a pretreatment of a sufficient amount of DUV radiation to induce sufficient densification in enough of the coating bulk to inhibit subsequent densification during continued exposure to DUV or shorter wavelength
15 radiation.

2. The method of claim 1 further comprising:

 the pretreatment radiation exposure amounts to energy of at least the equivalent of about 2Bp at 9mJ per pulse.

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3. The method of claim 2 further comprising:

 the pretreatment radiation exposure amounts the energy being delivered in at about 3KHz pulse repetition rate.

25 4. The method of claim 1 further comprising:

 the pretreatment radiation exposure amounts to energy of at least the equivalent of 15-18 mJ per pulse delivered over about 700 M to 1B pulses.

5. The method of claim 1 further comprising:

30 the coating bulk forms a plurality of layers; and,
 determining the amount of DUV radiation based upon a specified reduction in hygroscopicity of one or more of the layers.

6. The method of claim 1 further comprising:

35 the coating bulk forms a plurality of layers; and,

5 determining the amount of DUV radiation based upon a specified reduction
in compaction of one or more of the layers.

7. The method of claim 1 further comprising:

the coating bulk forms a plurality of layers; and,

10 determining the amount of DUV radiation based upon a specified reduction
in hygroscopicity and compaction of one or more of the layers.